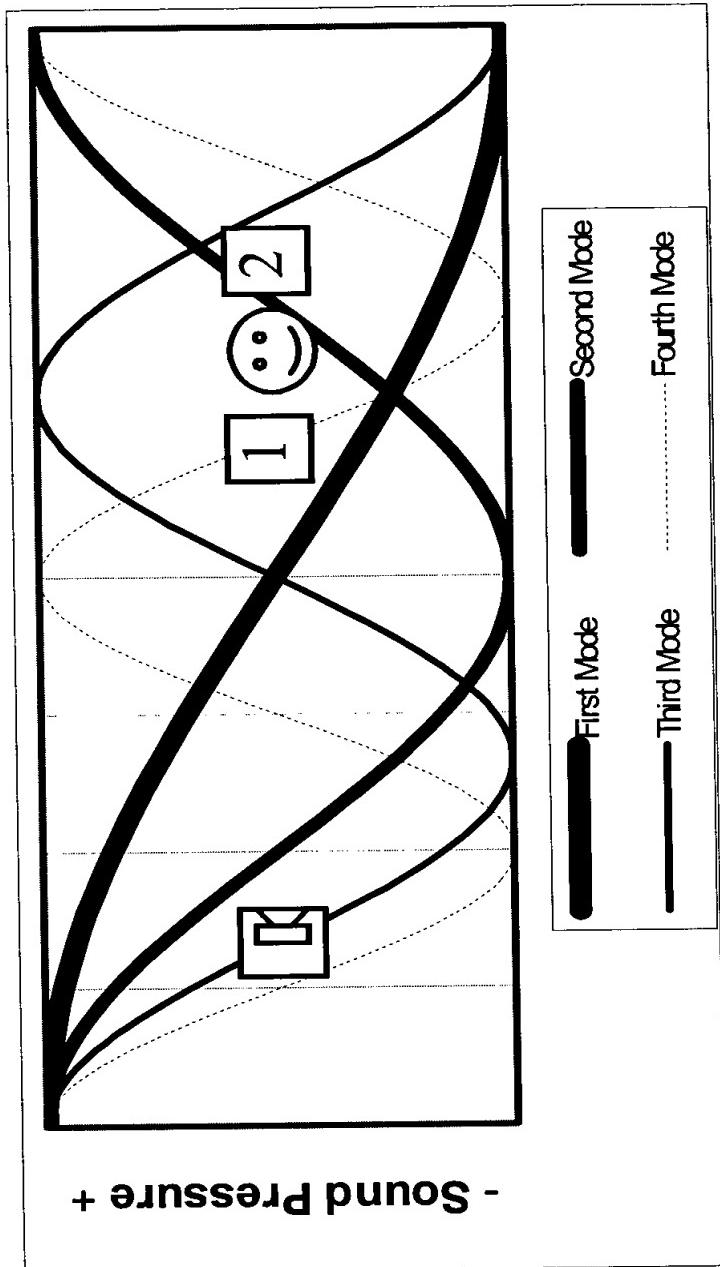
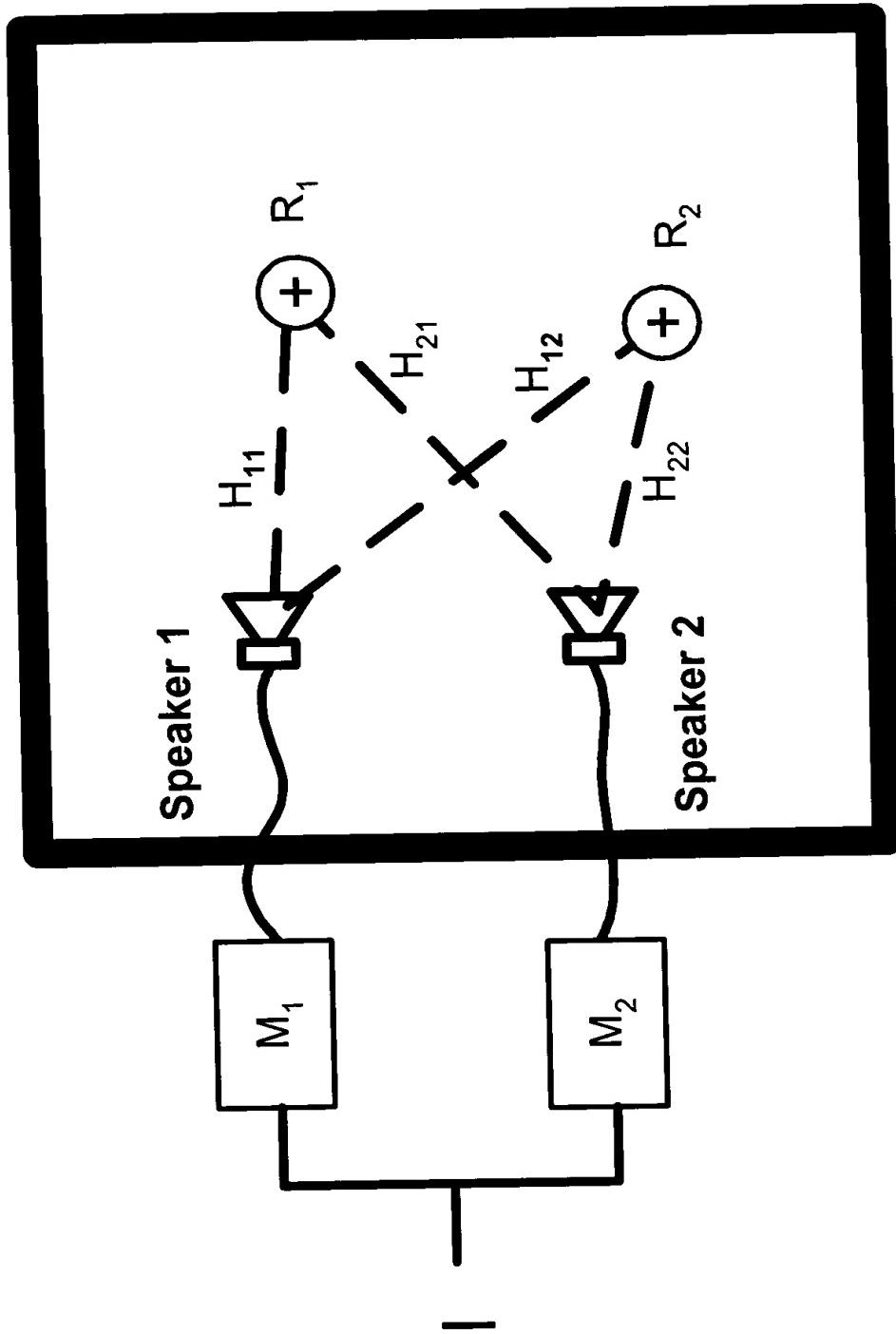


FIG. 1



PRIOR ART

FIG. 2



PRIOR ART

FIG. 3

Inventor Names: TODD S. WELTI, ET AL.

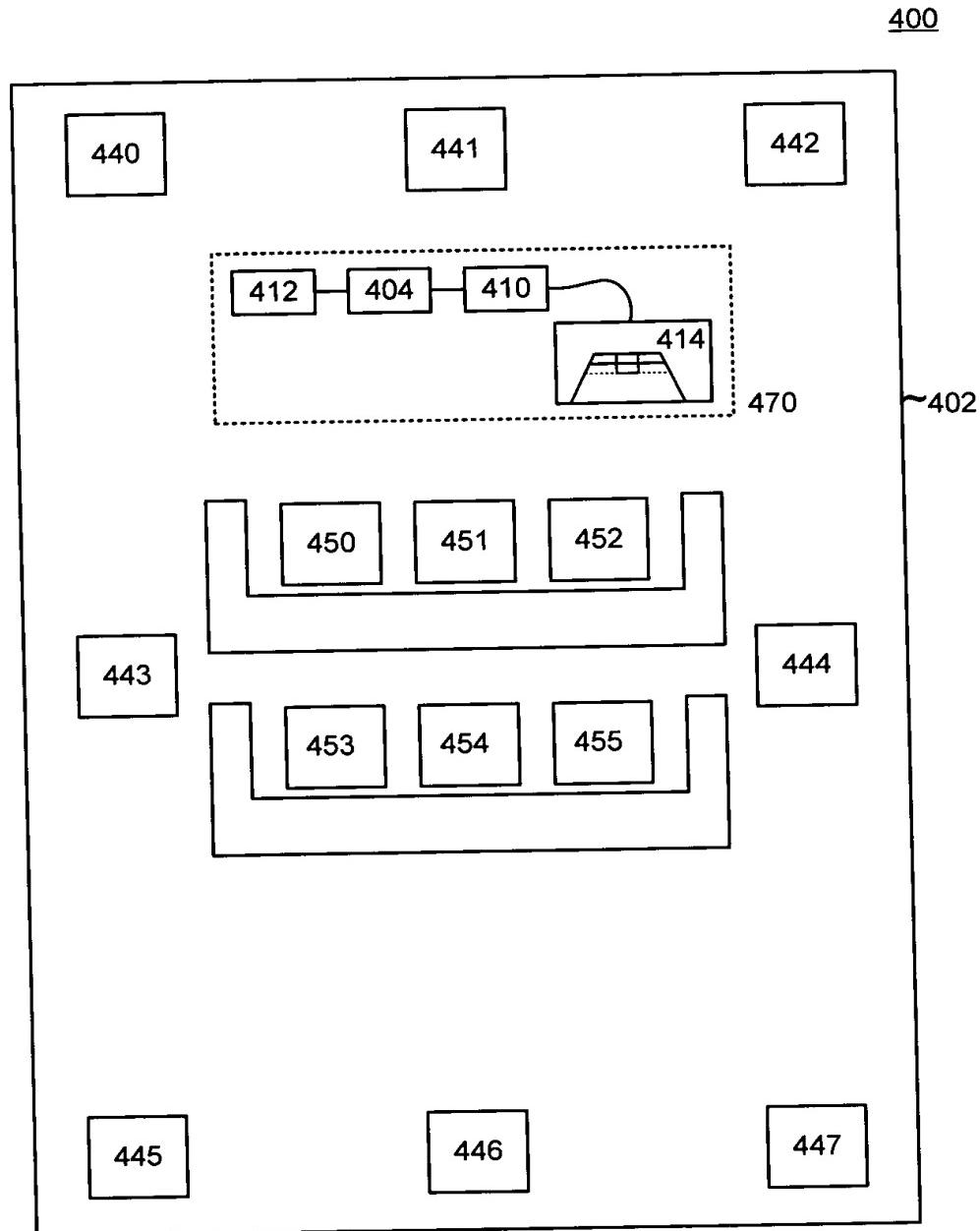
Title of Invention: SYSTEM FOR SELECTING CORRECTION FACTORS FOR AN AUDIO SYSTEM

Docket No. 11336-434 (P03060US)

Filing Date: October 10, 2003

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FIG. 4



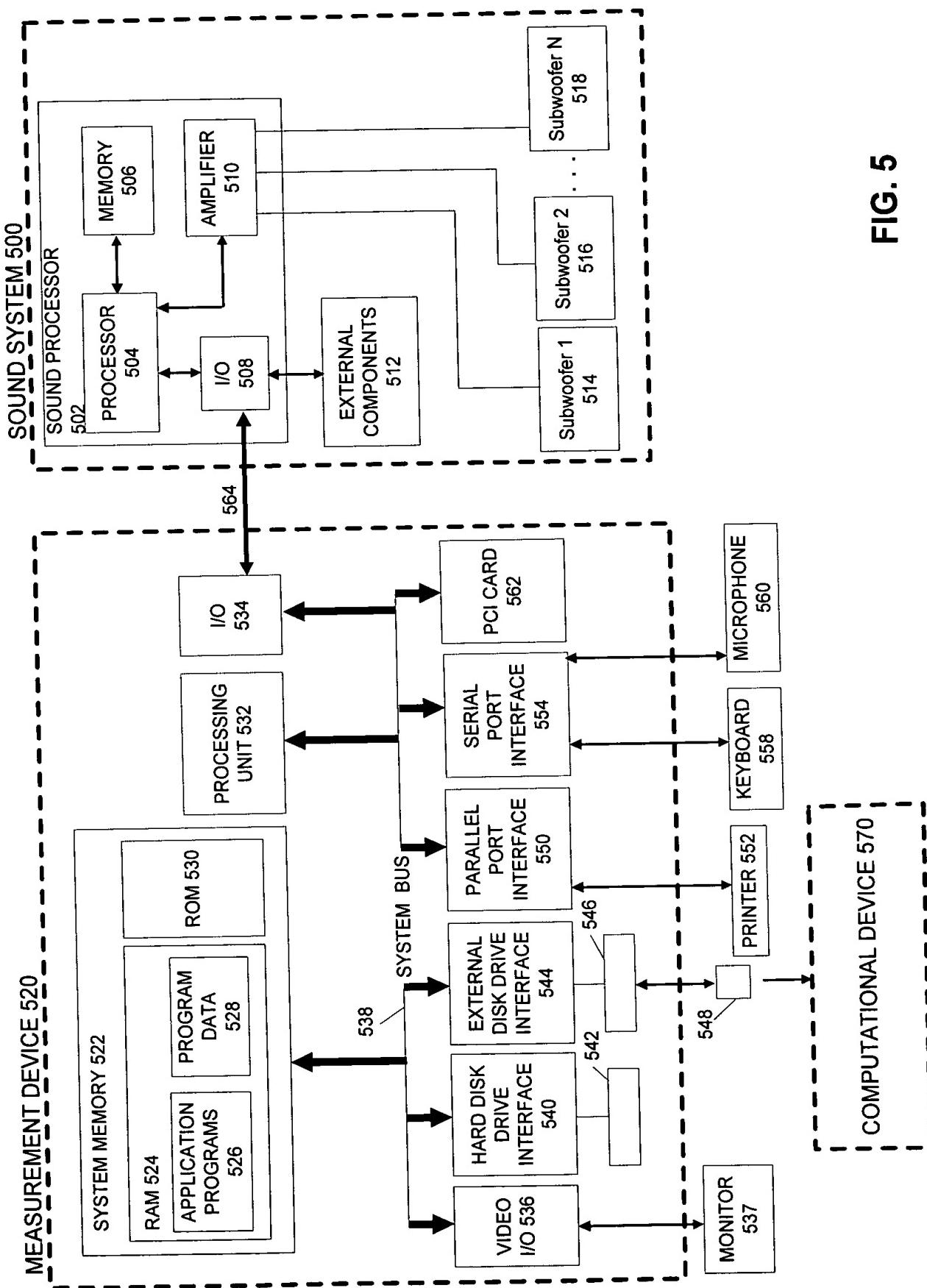


FIG. 5

FIG. 6

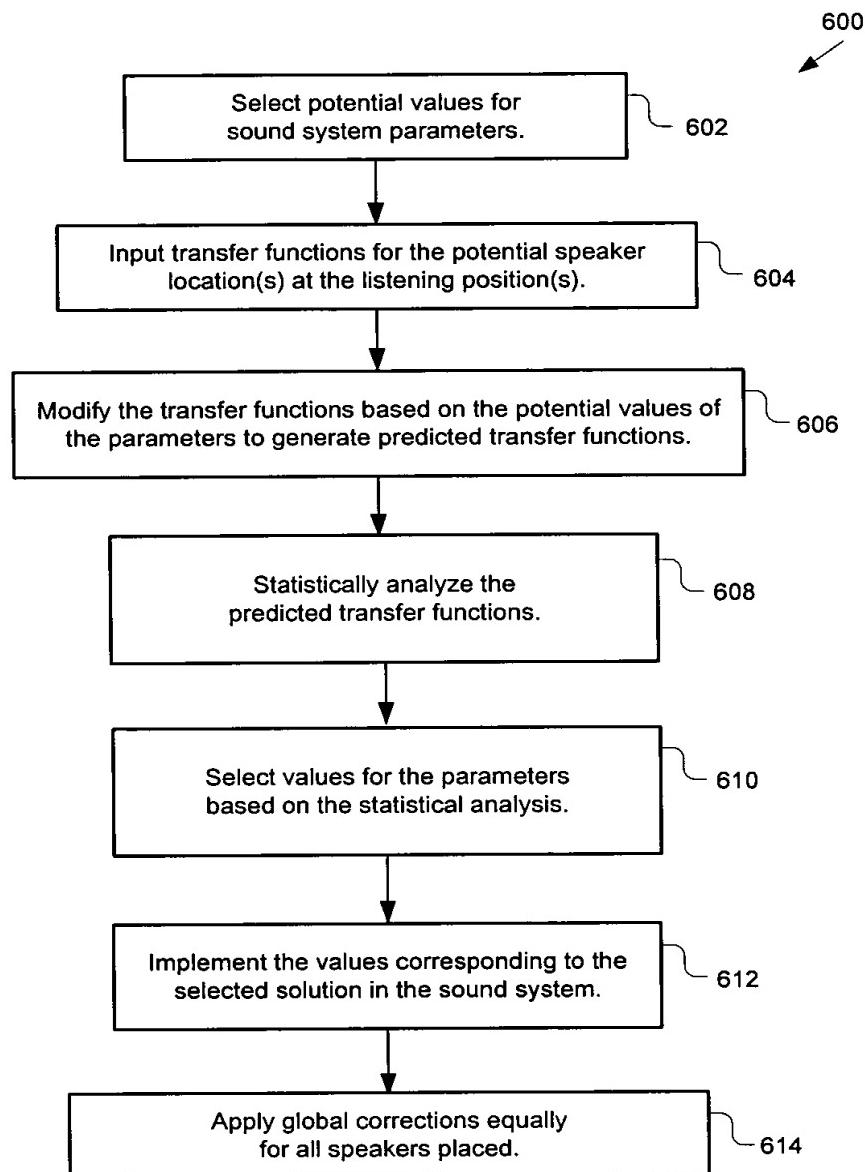


FIG. 7

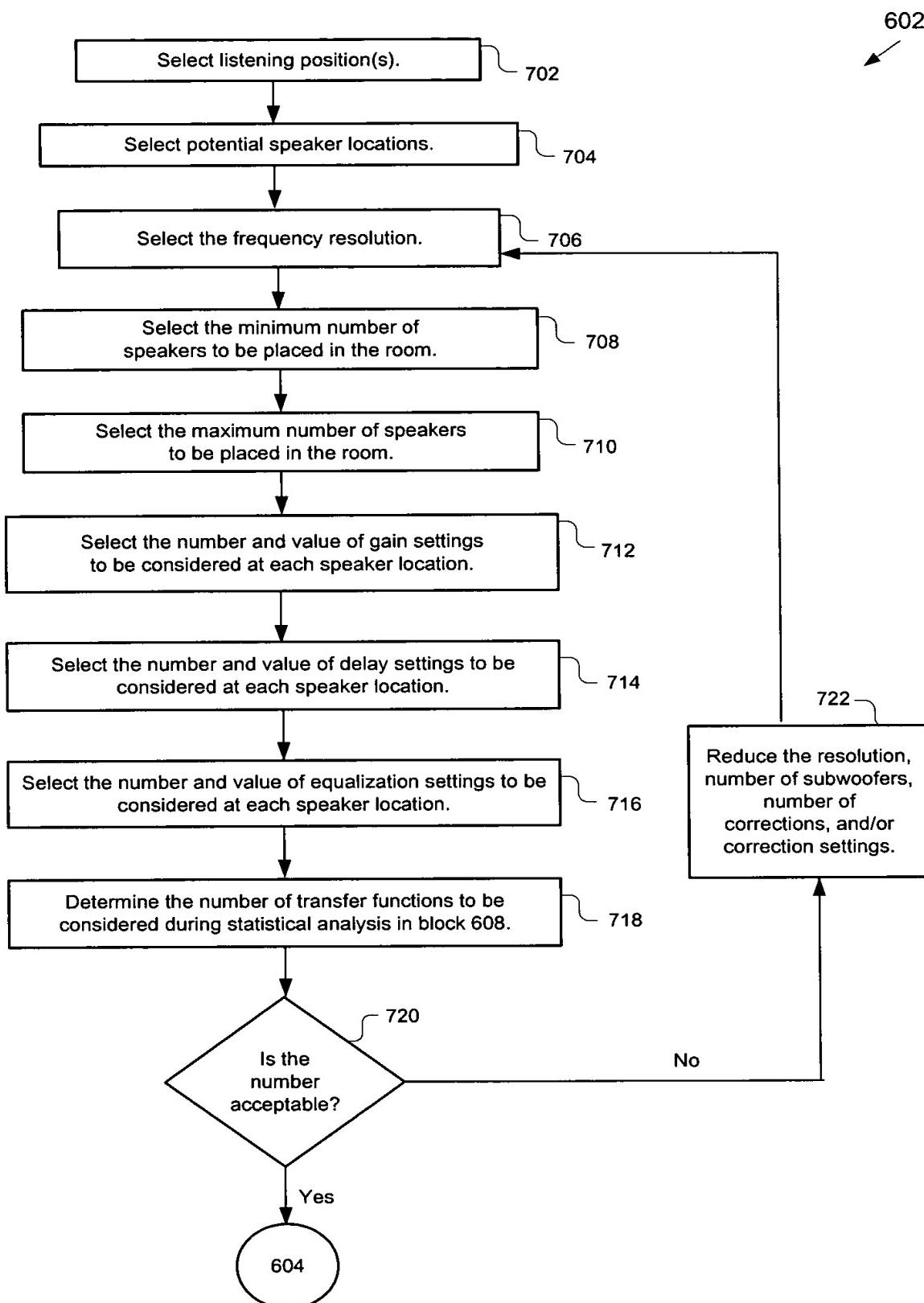
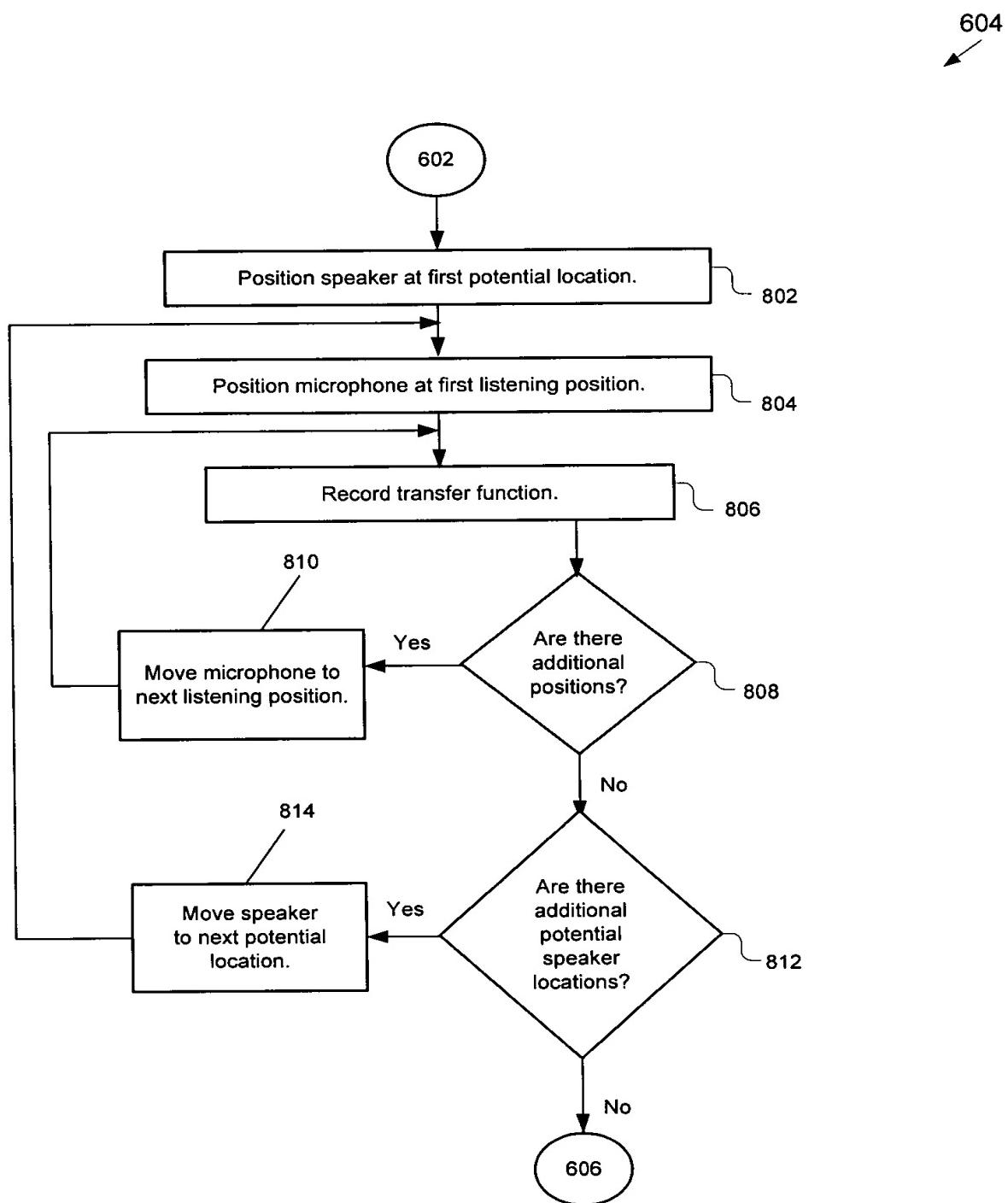


FIG. 8



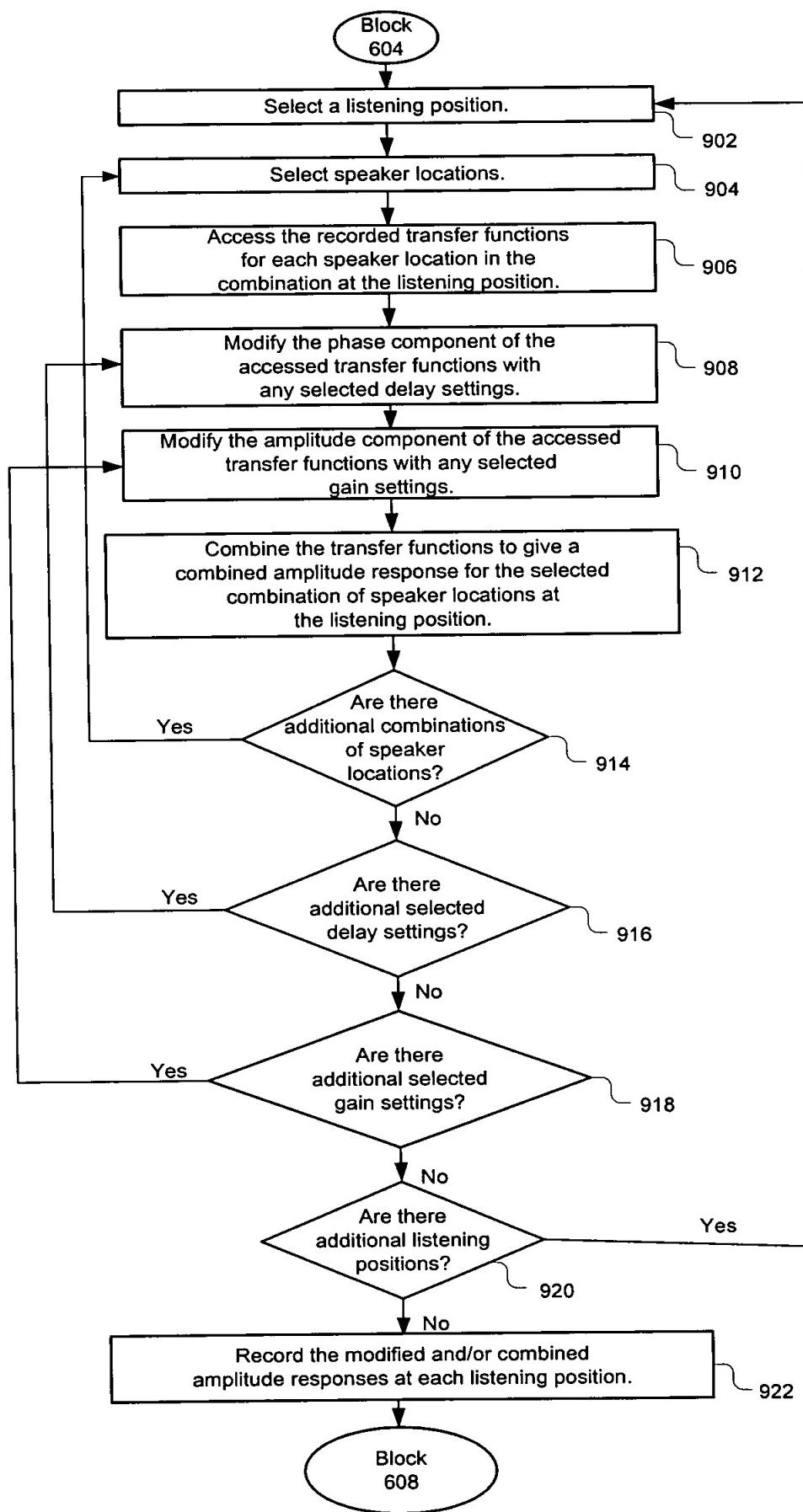


FIG. 9

606

| frequency | Raw Data | | | | | Spatial Variance | Spatial STDEV | Spatial Envelope | Spatial Max-ave |
|-----------|----------|--------|--------|--------|--------|------------------|---------------|------------------|-----------------|
| | seat 1 | seat 2 | seat 3 | seat 4 | seat 5 | | | | |
| 20 | -17.71 | -16.38 | -18.13 | -14.51 | -12.99 | -15.94 | 4.72 | 2.17 | 5.14 |
| 22 | -16.60 | -15.62 | -15.44 | -5.07 | -6.21 | -11.79 | 31.88 | 5.65 | 11.53 |
| 24 | -17.26 | -24.25 | -20.21 | -10.22 | -13.12 | -17.01 | 31.00 | 5.57 | 14.03 |
| 26 | -11.73 | -14.44 | -16.10 | -8.19 | -9.83 | -12.06 | 10.53 | 3.25 | 7.92 |
| 28 | -11.72 | -14.14 | -13.79 | -3.30 | -8.24 | -10.24 | 20.54 | 4.53 | 10.83 |
| 30 | -19.70 | -17.51 | -13.79 | -8.16 | -8.69 | -13.57 | 26.58 | 5.16 | 11.54 |
| 32 | -22.44 | -22.50 | -19.69 | -13.33 | -12.41 | -18.07 | 23.96 | 4.90 | 10.09 |
| 34 | -19.80 | -19.50 | -21.25 | -17.85 | -16.70 | -19.02 | 3.14 | 1.77 | 4.55 |
| 36 | -19.06 | -19.48 | -18.22 | -13.00 | -19.80 | -17.91 | 7.89 | 2.81 | 6.80 |
| 38 | -19.83 | -17.91 | -20.68 | -14.88 | -23.61 | -19.38 | 10.54 | 3.25 | 8.73 |
| 40 | -18.75 | -16.72 | -17.08 | -20.89 | -22.82 | -19.25 | 6.71 | 2.59 | 6.10 |
| 42 | -15.02 | -13.59 | -14.73 | -18.38 | -21.44 | -16.63 | 10.41 | 3.62 | 4.50 |
| 44 | -13.85 | -12.98 | -13.78 | -21.20 | -18.60 | -16.08 | 13.10 | 5.43 | 2.53 |
| 46 | -15.85 | -13.80 | -12.74 | -18.62 | -13.84 | -14.97 | 2.33 | 2.33 | 2.23 |
| 48 | -16.58 | -12.29 | -15.48 | -14.20 | -10.02 | -13.71 | 6.80 | 2.61 | 6.55 |
| 50 | -6.76 | -4.32 | -7.56 | -12.47 | -6.48 | -7.52 | 9.09 | 3.02 | 8.15 |
| 52 | 0.47 | 2.07 | -0.50 | -7.13 | -0.89 | -1.19 | 12.33 | 3.51 | 9.21 |
| 54 | 5.22 | 7.20 | 5.79 | -0.33 | 5.60 | 4.70 | 2.91 | 7.53 | 2.50 |
| 56 | 5.60 | 7.68 | 6.99 | 2.99 | 8.86 | 6.42 | 5.07 | 5.78 | 3.20 |
| 58 | 4.13 | 5.71 | 5.20 | 2.36 | 8.14 | 5.11 | 4.52 | 2.13 | 3.27 |
| 60 | 1.31 | 2.94 | 3.23 | 2.15 | 6.85 | 3.30 | 4.50 | 2.12 | 3.55 |
| 62 | -0.95 | 0.43 | 1.43 | -0.04 | 2.53 | 0.68 | 1.34 | 3.47 | 1.85 |
| 64 | -6.34 | -4.22 | -2.79 | -1.93 | 0.77 | -2.90 | 7.00 | 2.64 | 7.11 |
| 66 | -6.57 | -3.47 | -1.77 | -6.68 | -4.59 | -4.62 | 4.37 | 2.09 | 4.91 |
| 68 | -2.12 | 0.25 | 1.84 | -18.61 | -7.12 | -5.15 | 68.03 | 8.25 | 20.45 |
| 70 | -6.24 | -4.01 | -0.33 | -5.86 | -1.09 | -3.51 | 7.29 | 2.70 | 5.91 |
| 72 | -5.02 | -1.94 | -3.21 | -4.27 | -1.03 | -3.09 | 2.68 | 1.64 | 3.99 |
| 74 | -6.33 | -1.93 | 0.01 | -9.78 | -10.56 | -5.72 | 21.88 | 4.68 | 10.57 |
| 76 | -8.14 | -3.79 | -1.29 | -12.48 | -18.59 | -8.86 | 47.82 | 6.92 | 17.30 |
| 78 | -21.63 | -9.69 | -4.21 | -16.46 | -8.91 | -12.18 | 47.03 | 6.86 | 17.42 |
| 80 | -5.65 | -10.12 | -6.63 | -11.59 | -5.71 | -7.94 | 7.50 | 2.74 | 5.94 |

| Mean Level | Mean Overall Level | Variance of Mean Levels | STDEV of Mean Levels | Envelope of Mean Levels | Max-ave of Mean Levels | Mean Overall Level | Mean Spatial Variance | Mean STDEV | Mean Envelope | Mean Max-ave |
|-----------------------------|--------------------|-------------------------|----------------------|-------------------------|------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| -10.16 | -8.66 | -8.22 | -9.74 | -8.08 | -0.89 | 15.24 | 15.24 | 3.52 | 8.55 | 4.09 |
| -8.97 | 0.86 | 0.93 | 0.93 | 2.08 | 0.89 | 62.7919 | 62.7919 | 7.924135 | 25.80 | 15.39 |
| Variance of Spatial Average | Spatial Average | Spatial Average | Spatial Average | Spatial Average | Spatial Average | Max-ave of Spatial Average | Max-ave of Spatial Average | Max-ave of Spatial Average | Max-ave of Spatial Average | Max-ave of Spatial Average |

FIG. 10

FIG. 11

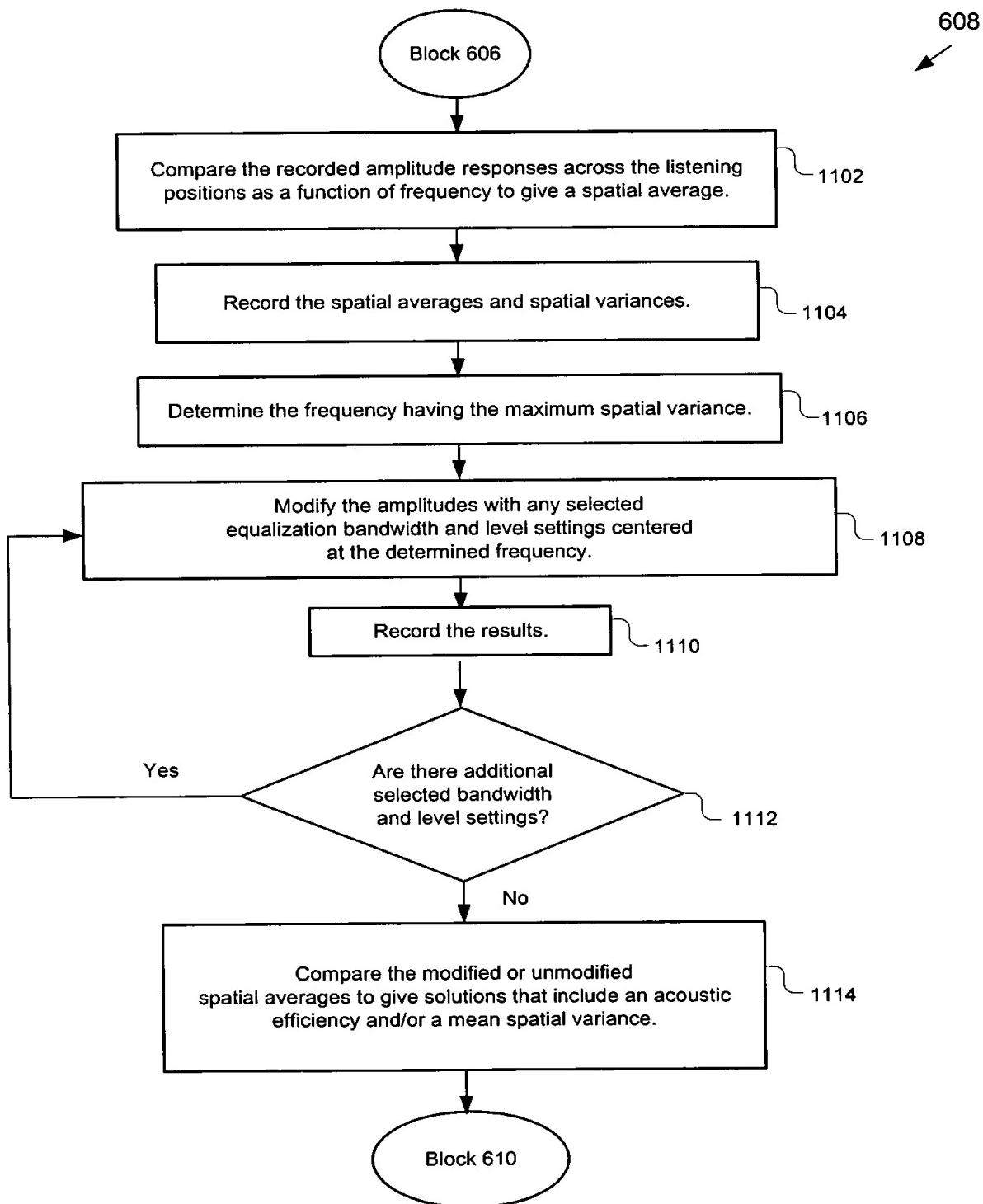


FIG. 12

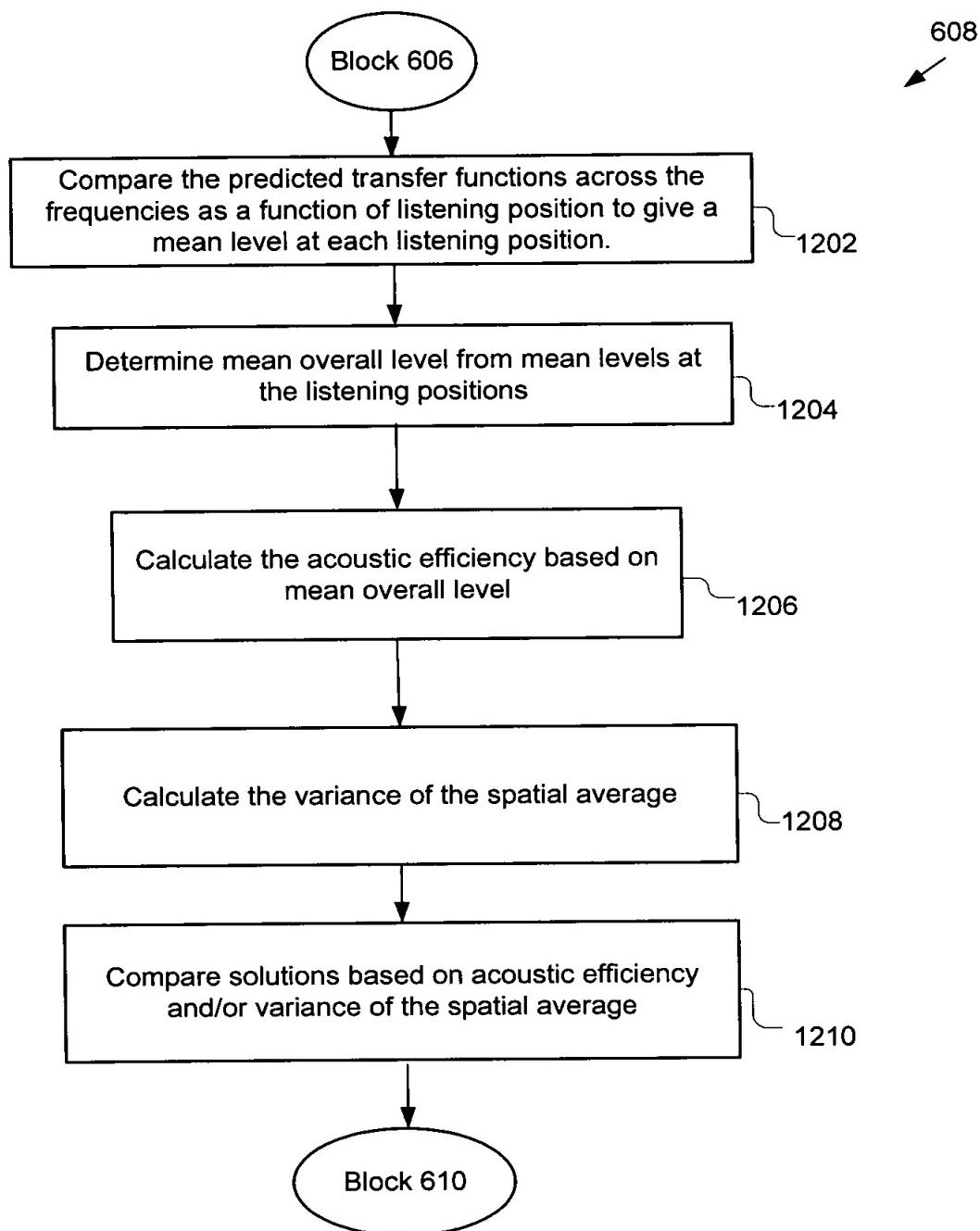
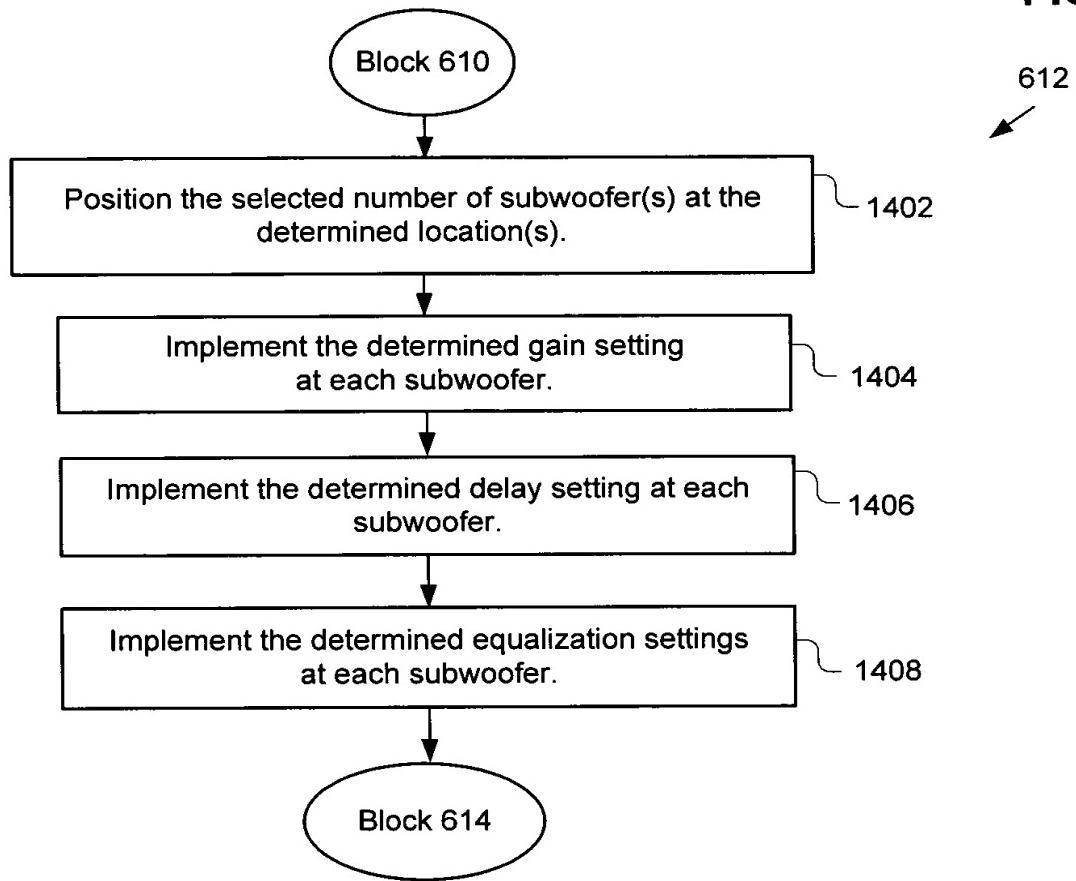


FIG. 13

Illustrative Solution Sets Ranked by Spatial Variance

| Solution | MSV | AE | VSA | S | Gain (dB) | Delay (ms) | Eq. Center (Hz) | Eq Bandwidth (Q) | Eq. Level (dB) |
|----------|-----|----|-----|---------|------------|------------|-----------------|------------------|----------------|
| 1 | 4.0 | 12 | 18 | 1, 2 | 0, 0 | 0, 5 | 82, 37 | 1, 4 | 0, -6 |
| 2 | 4.4 | 19 | 15 | 1, 2, 3 | -6, 0, -12 | 0, 10, 0 | 22, 64, 85 | 1, 4, 1 | -12, 0, -6 |
| 3 | 5 | 14 | 13 | 2, 3 | -6, 0 | 10, 0 | 27, 41 | 8, 1 | -6, -12 |
| 4 | 6 | 10 | 16 | 3, 4 | -12, 0 | 0, 0 | 93, 51 | 1, 8 | -12, 0 |
| 5 | 10 | 23 | 20 | 1, 3, 4 | 0, -12, 0 | 5, 0 | 34, 86 | 1, 1, 8 | 0, 0, -12 |
| 10,000 | 17 | 2 | 56 | 1, 4 | -6, -12 | 0, 10 | 27, 91 | 8, 8 | -6, -12, -6 |

FIG. 14



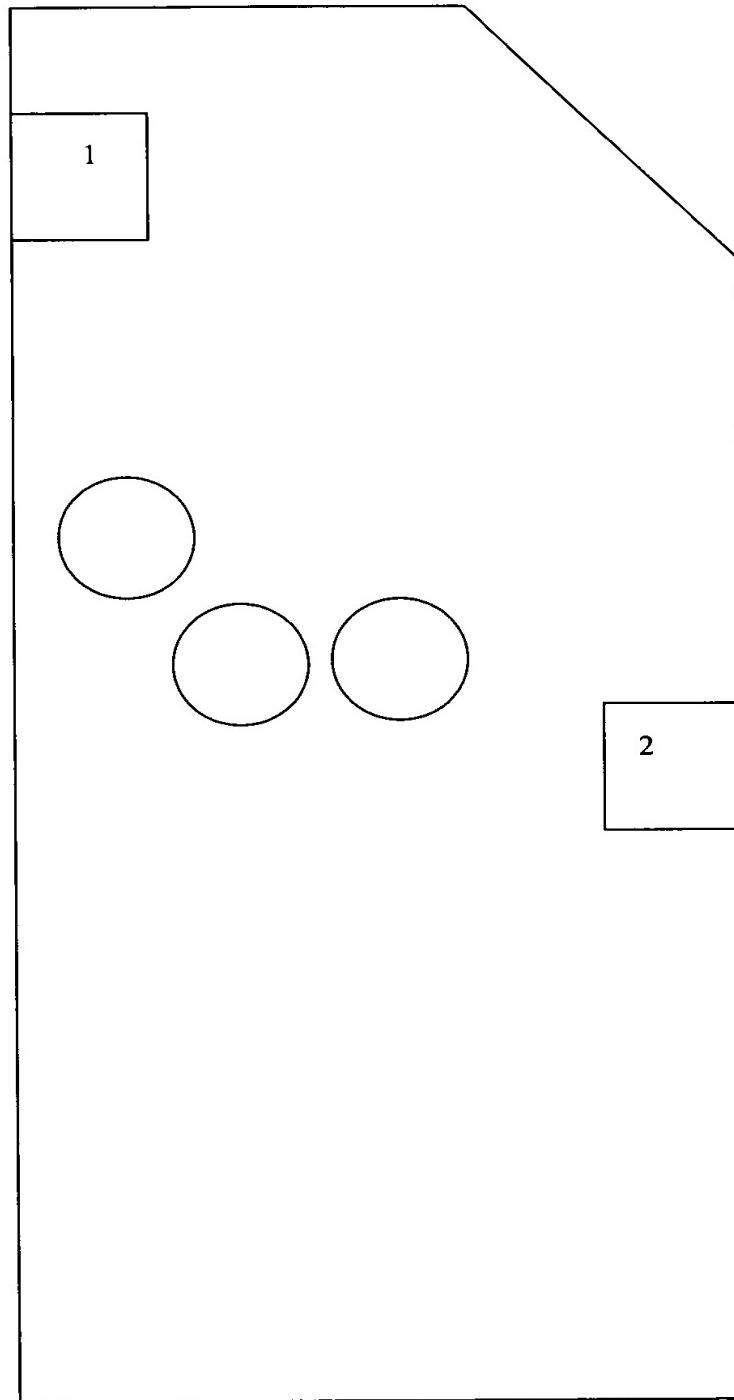


FIG. 15

Inventor Names: TODD S. WELTI, ET AL.

Title of Invention: SYSTEM FOR SELECTING CORRECTION FACTORS FOR AN AUDIO SYSTEM

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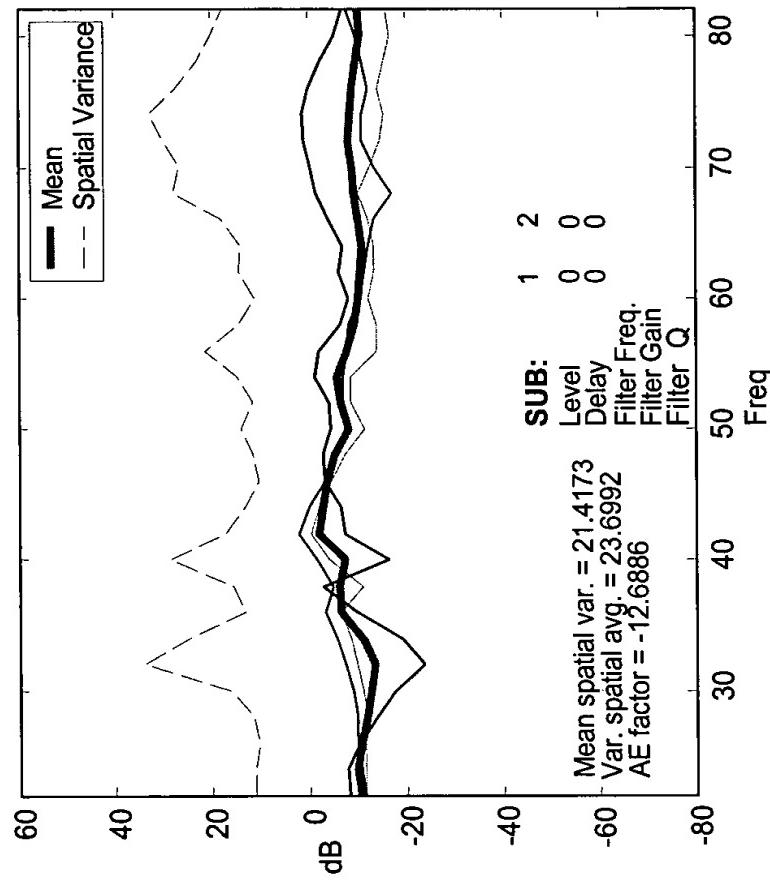


FIG. 16

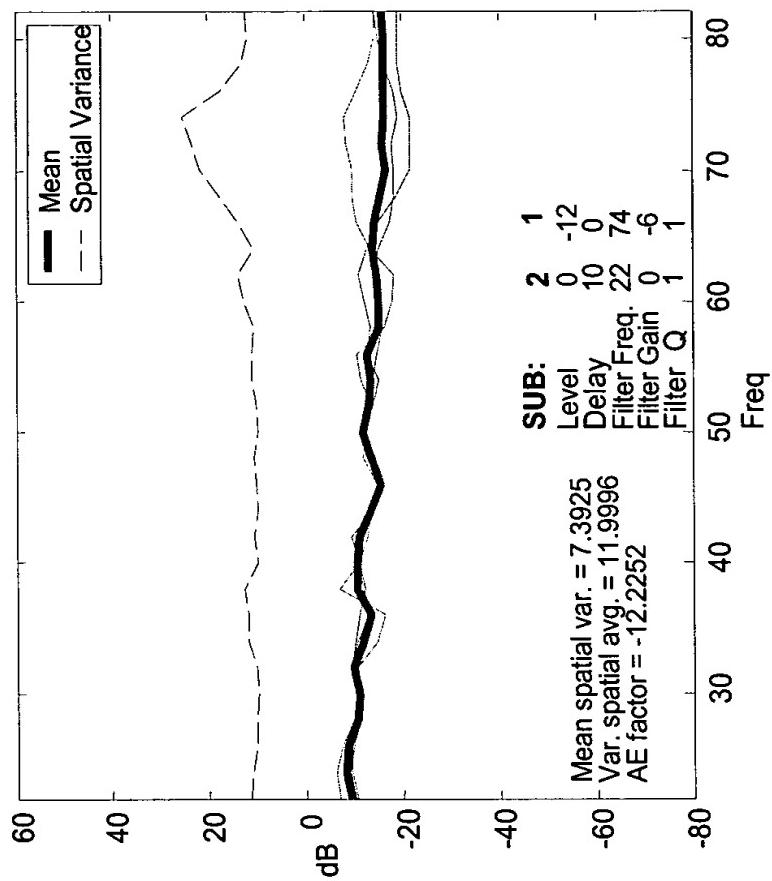


FIG. 17

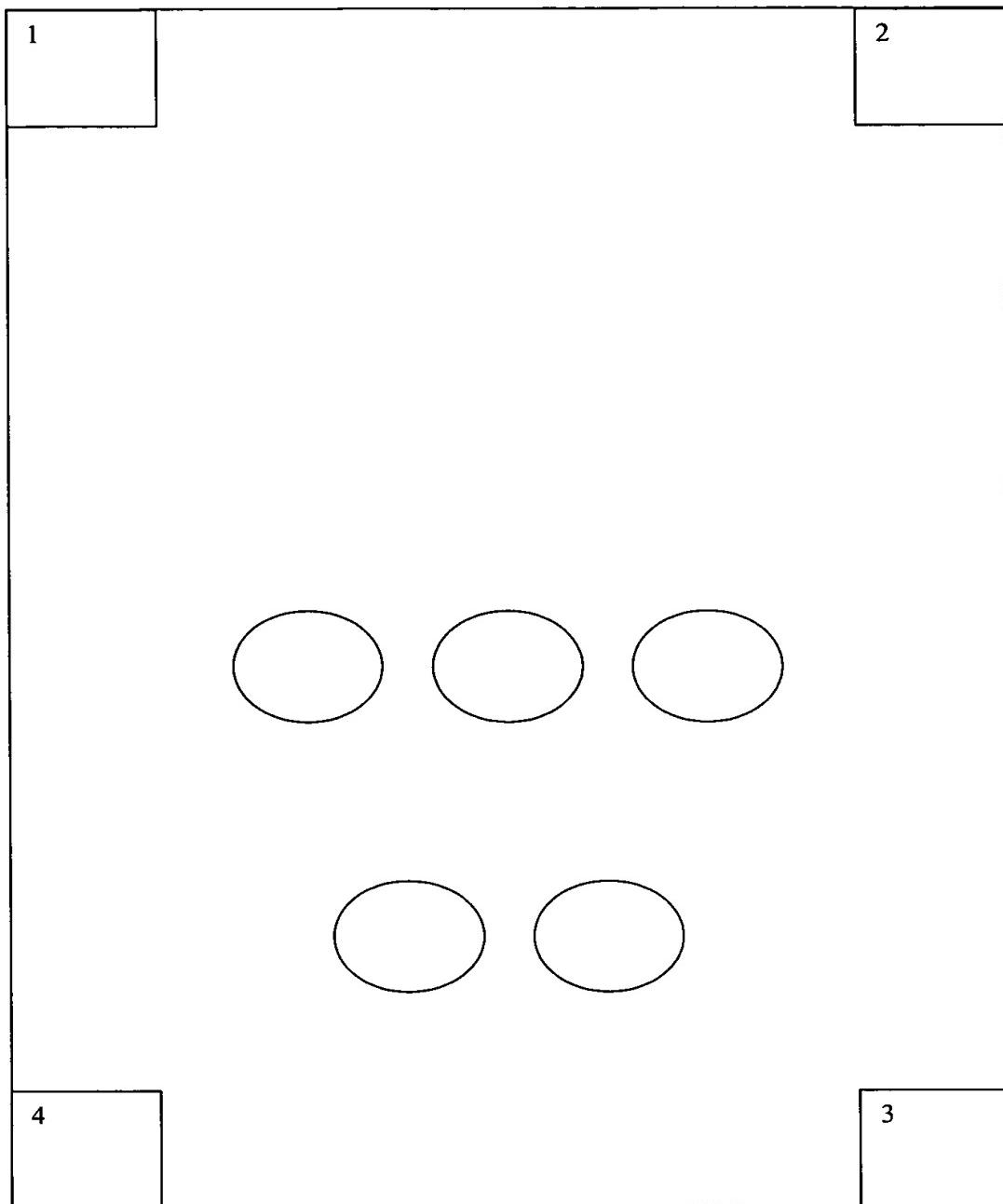


FIG. 18

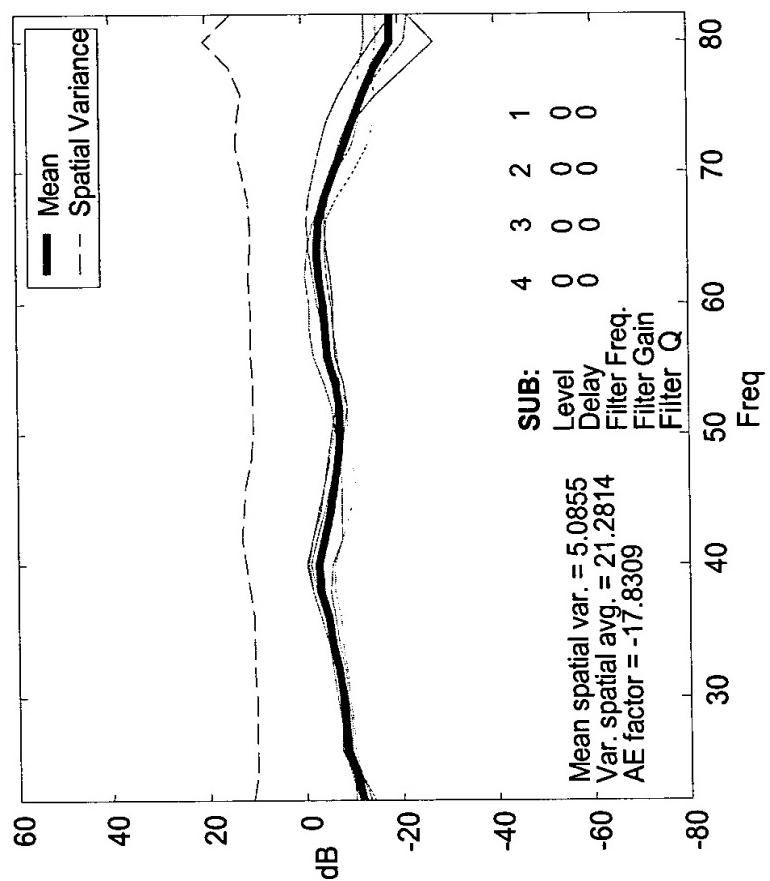


FIG. 19

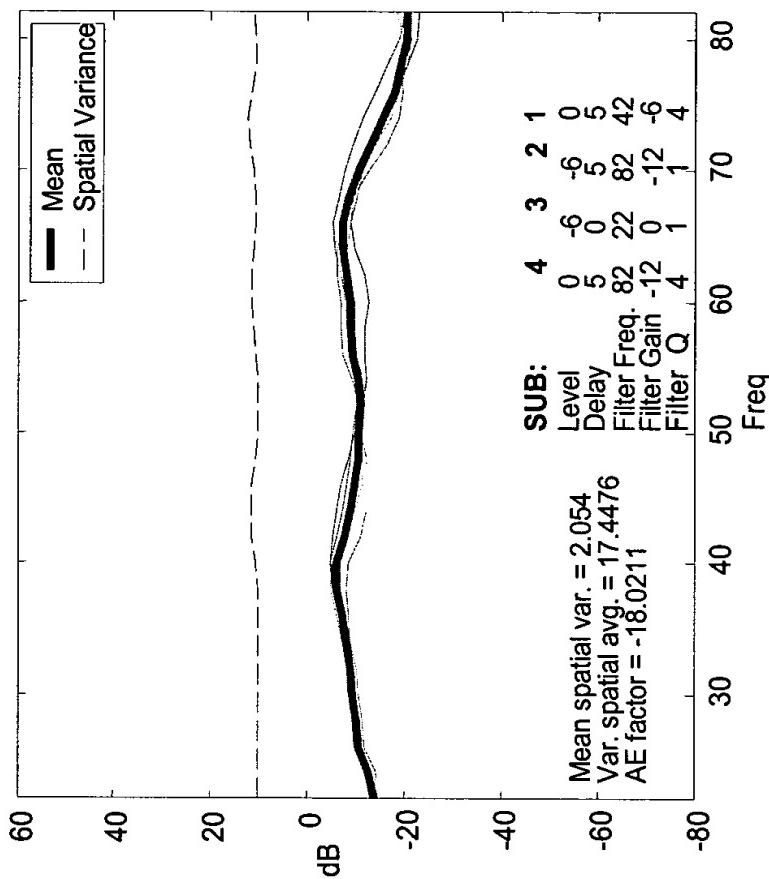


FIG. 20

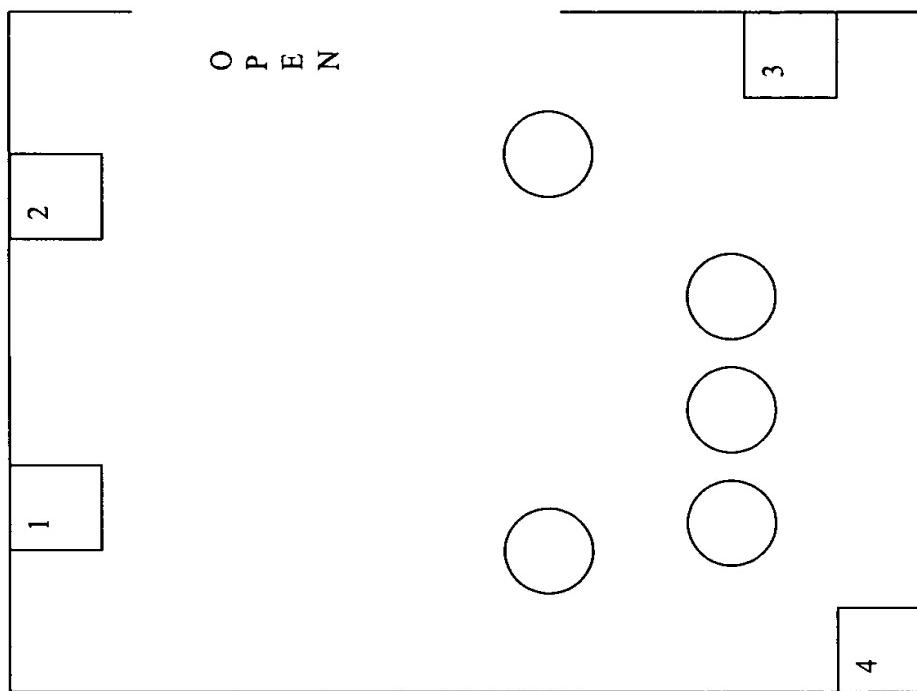


FIG. 21

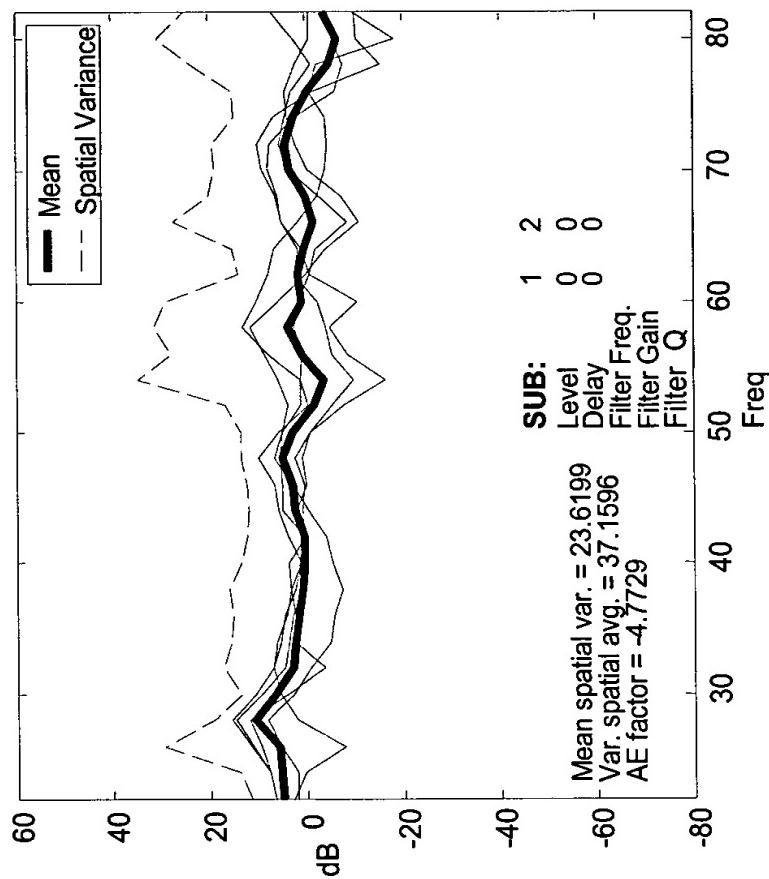


FIG. 22

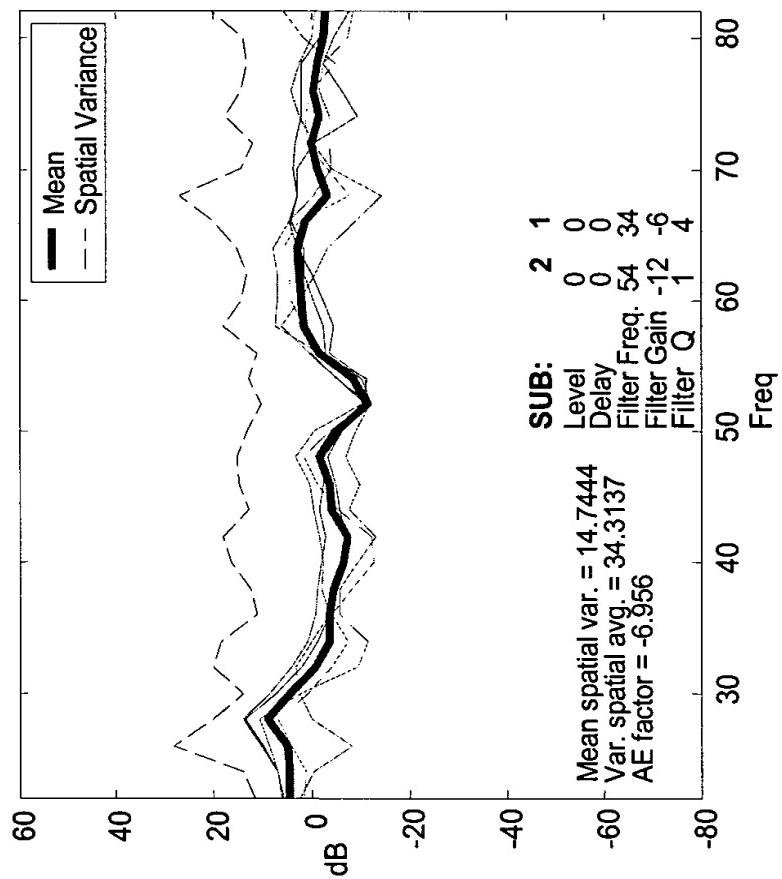


FIG. 23

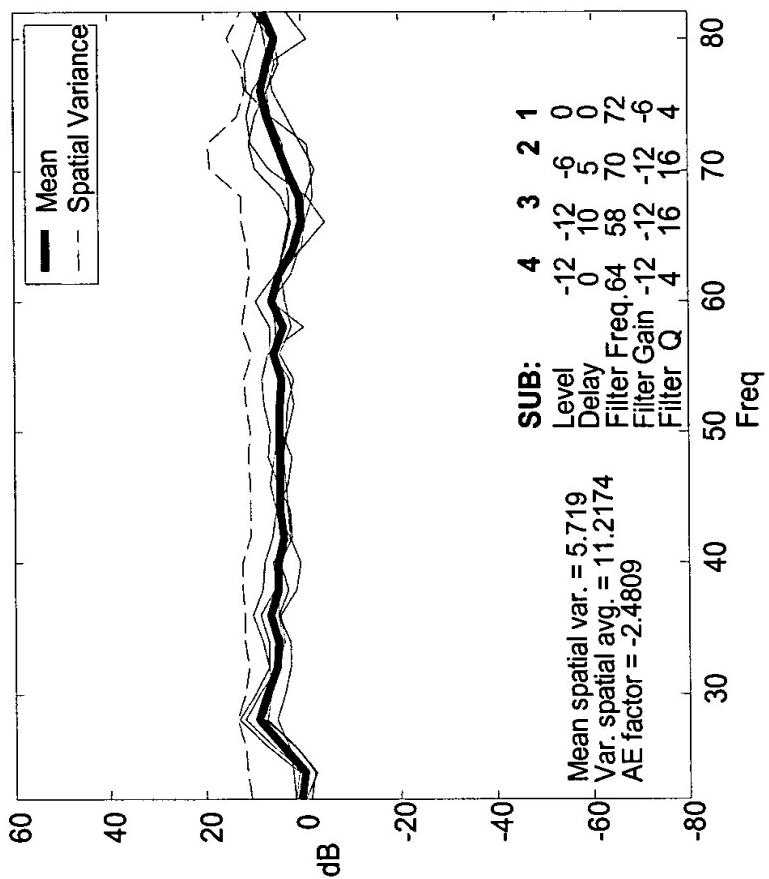


FIG. 24

Inventor Names: TODD S. WELTI, ET AL.

Title of Invention: SYSTEM FOR SELECTING CORRECTION FACTORS FOR AN AUDIO SYSTEM

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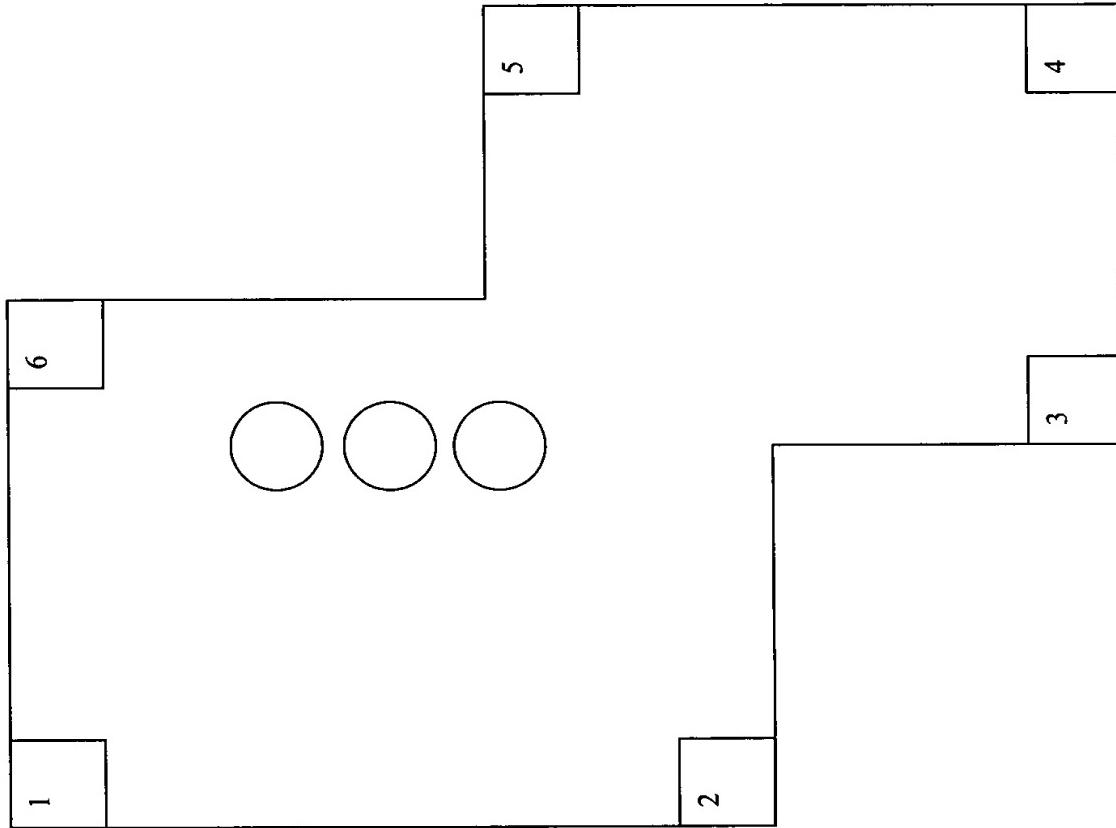


FIG. 25

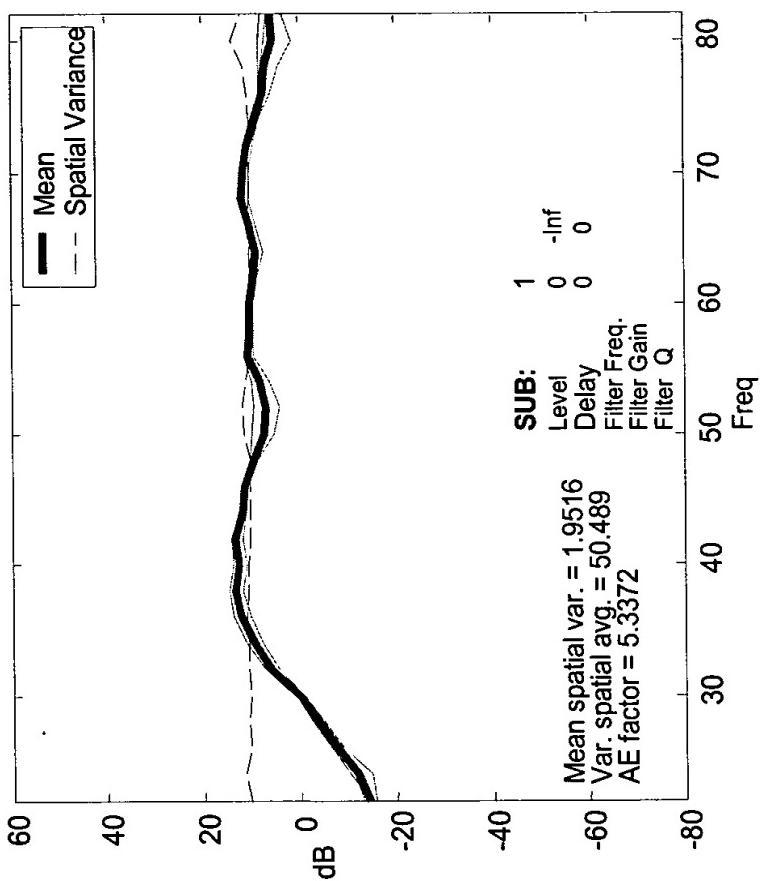


FIG. 26

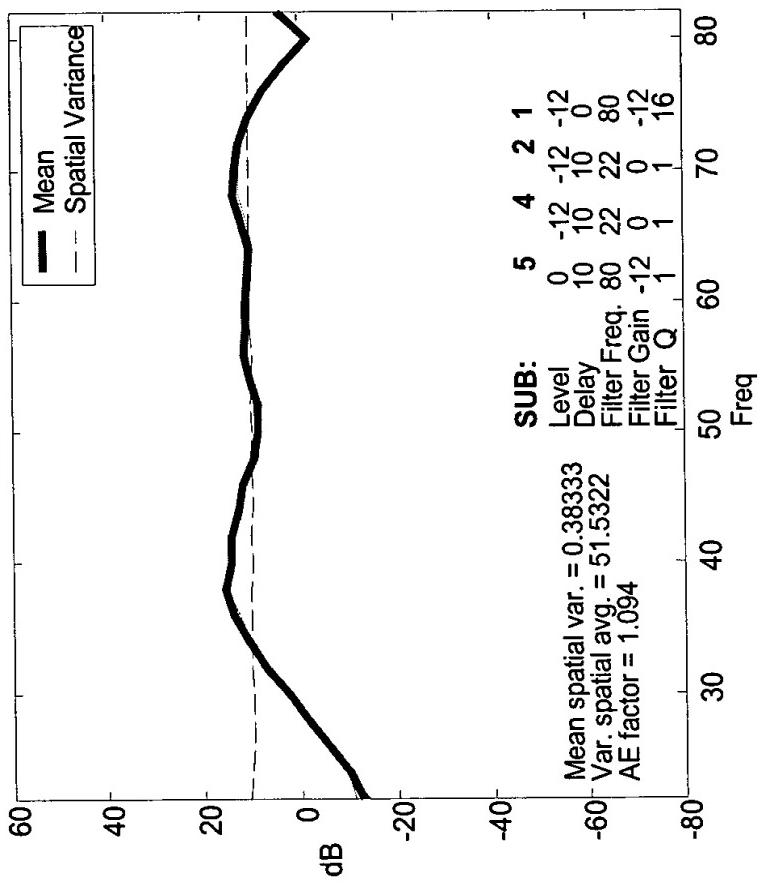


FIG. 27

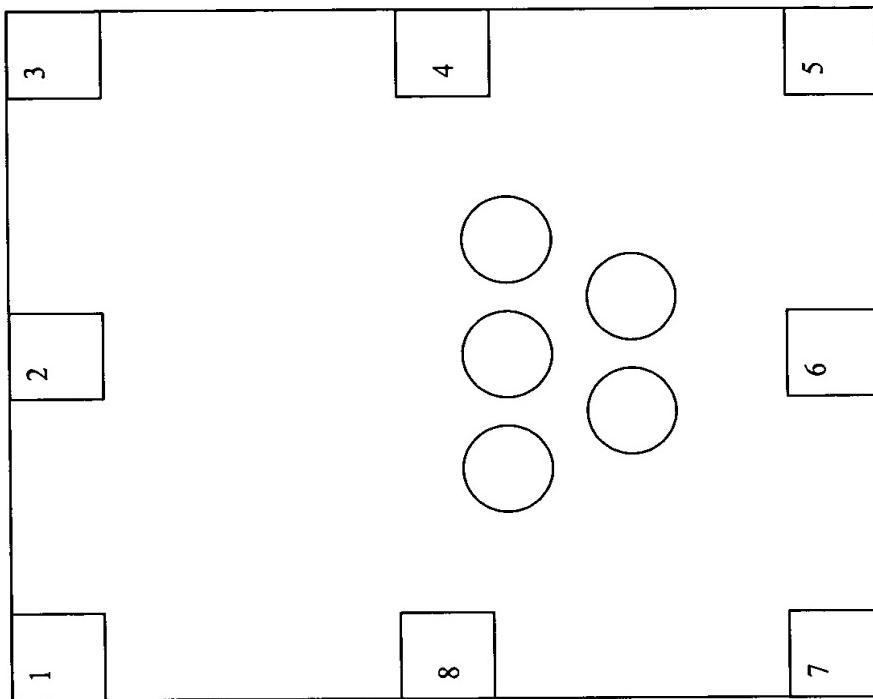


FIG. 28

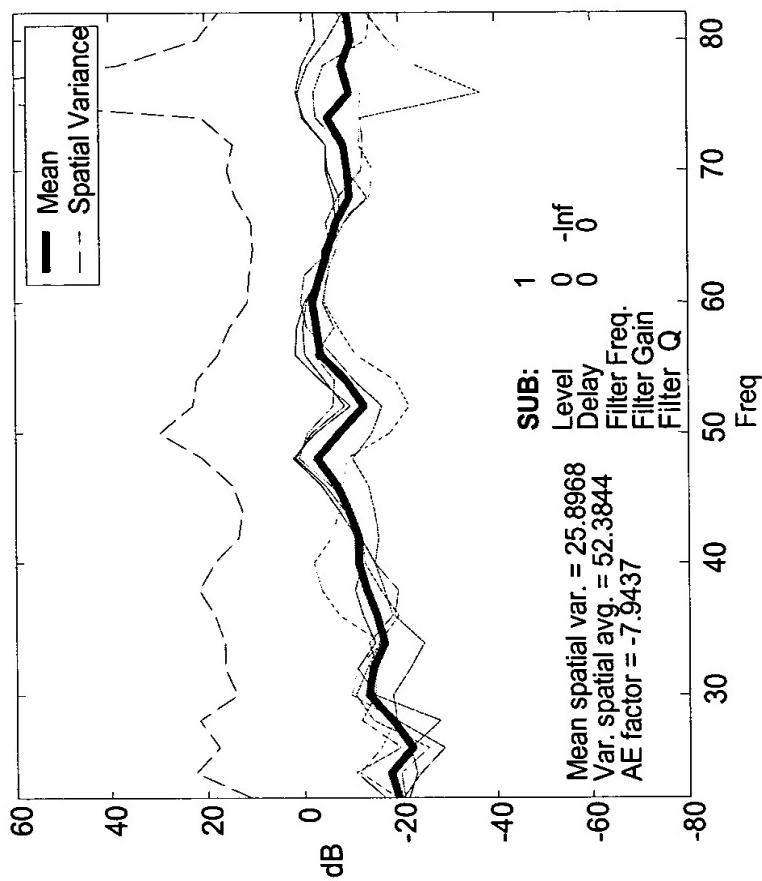


FIG. 29

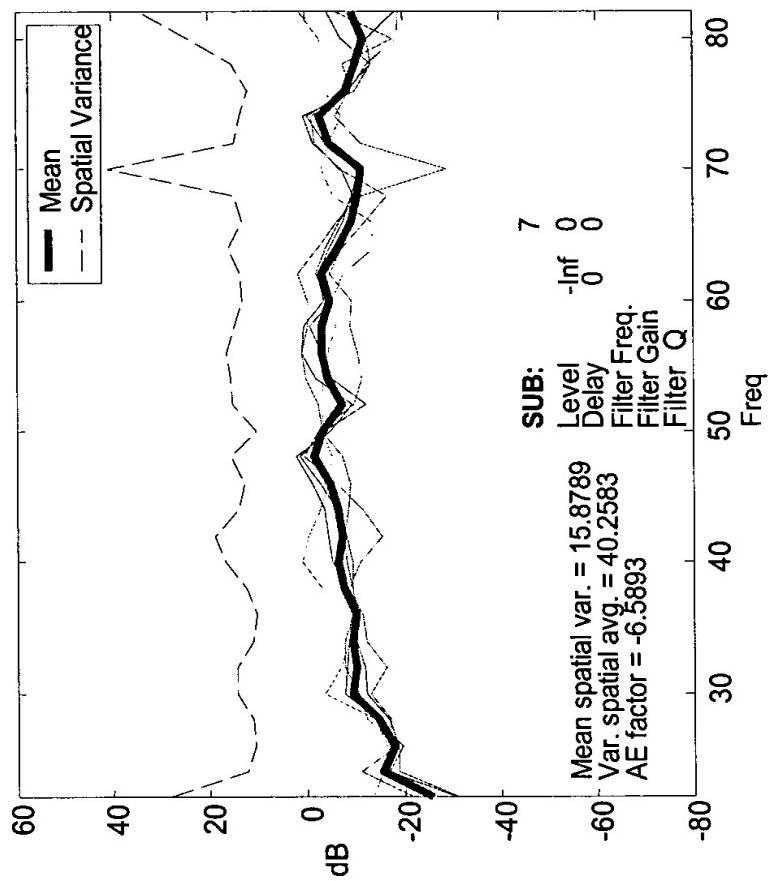


FIG. 30

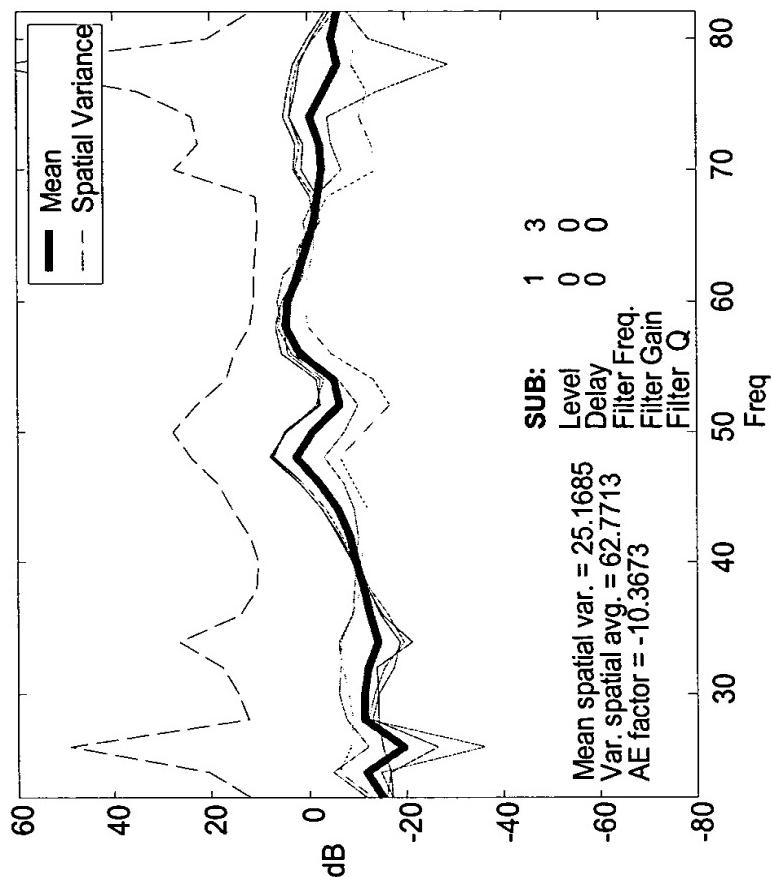


FIG. 31

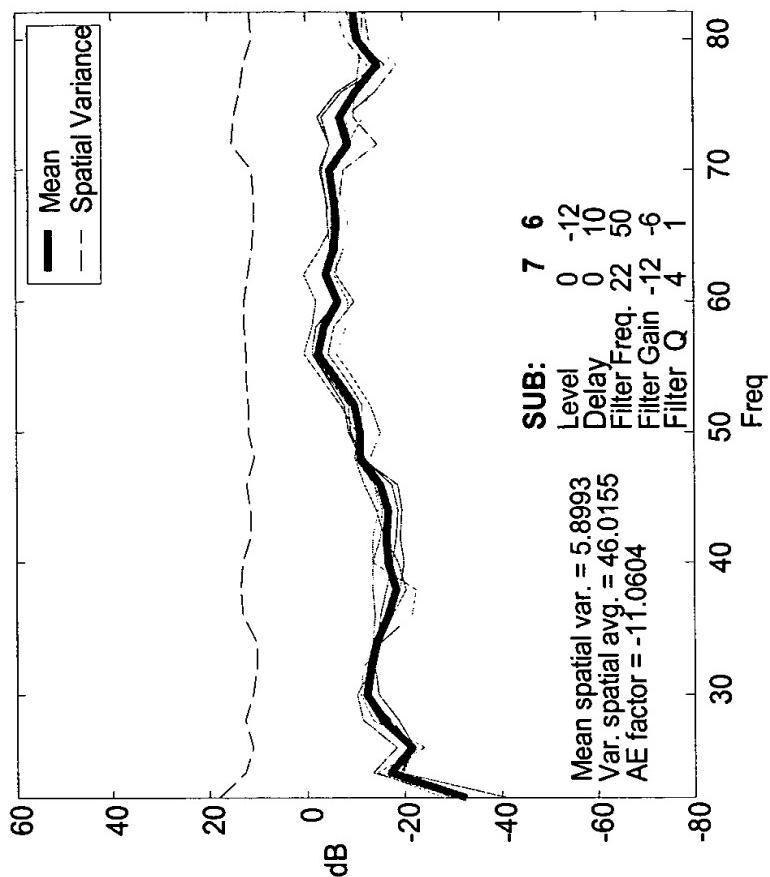


FIG. 32

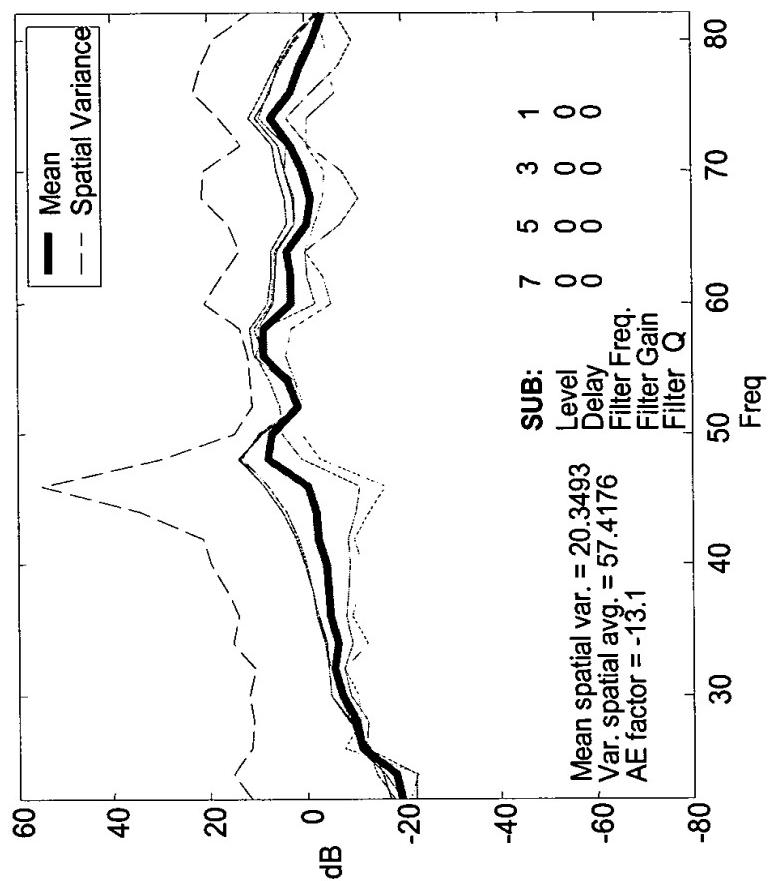


FIG. 33

Inventor Names: TODD S. WELTI, ET AL.

Title of Invention: SYSTEM FOR SELECTING CORRECTION FACTORS FOR AN AUDIO SYSTEM

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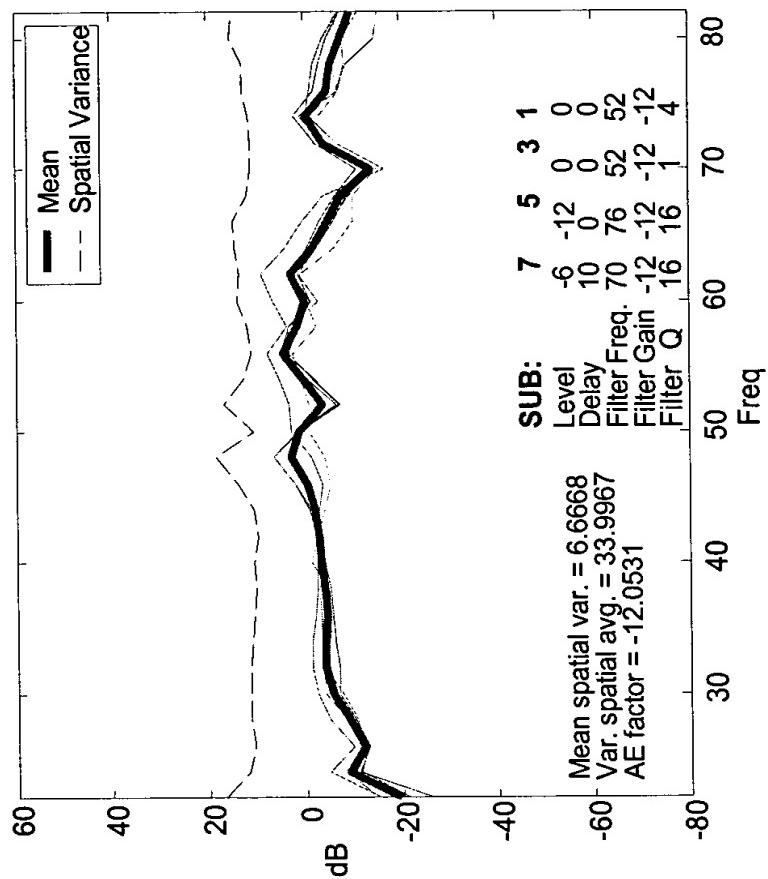


FIG. 34

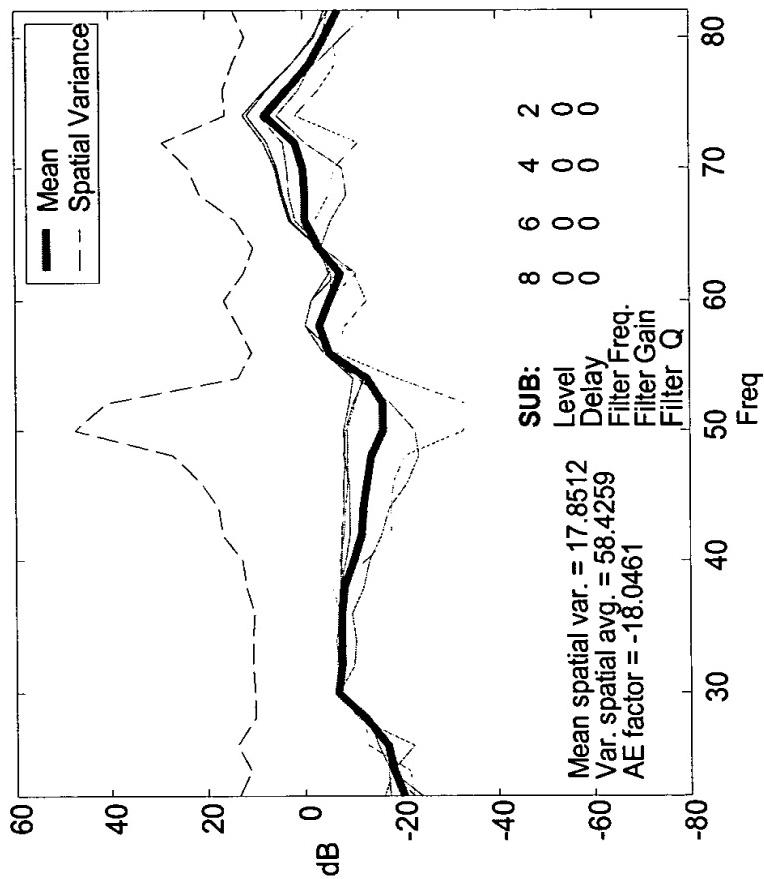


FIG. 35

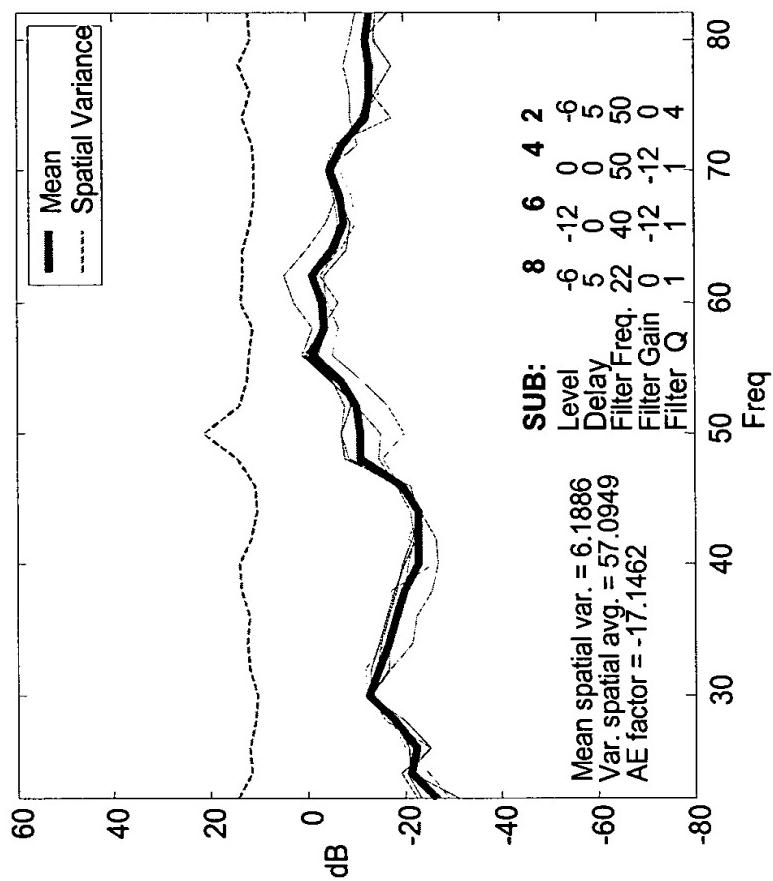


FIG. 36

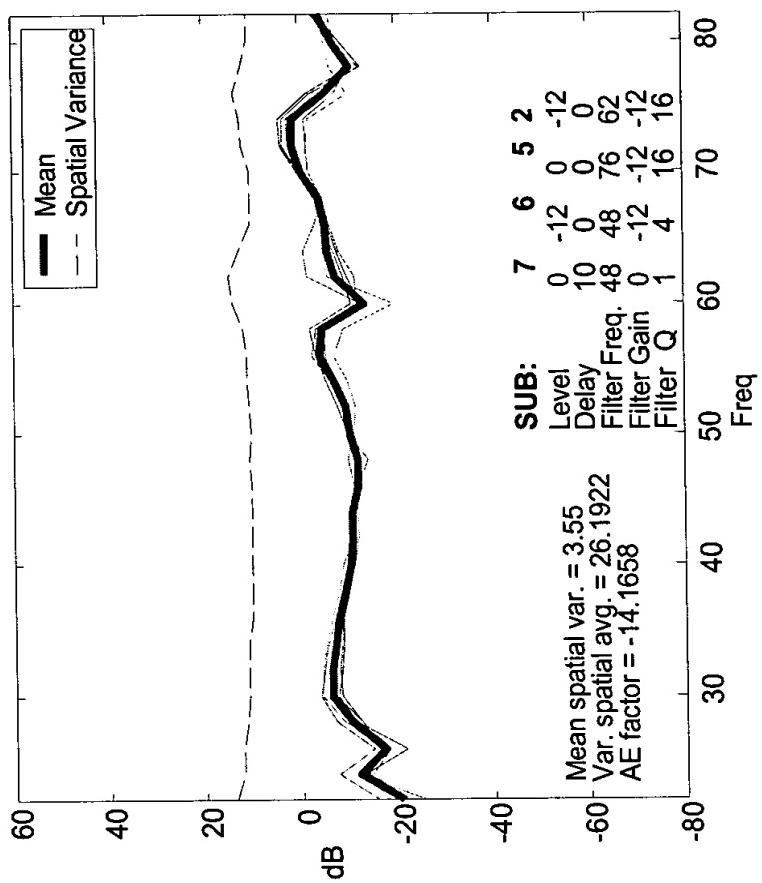


FIG. 37

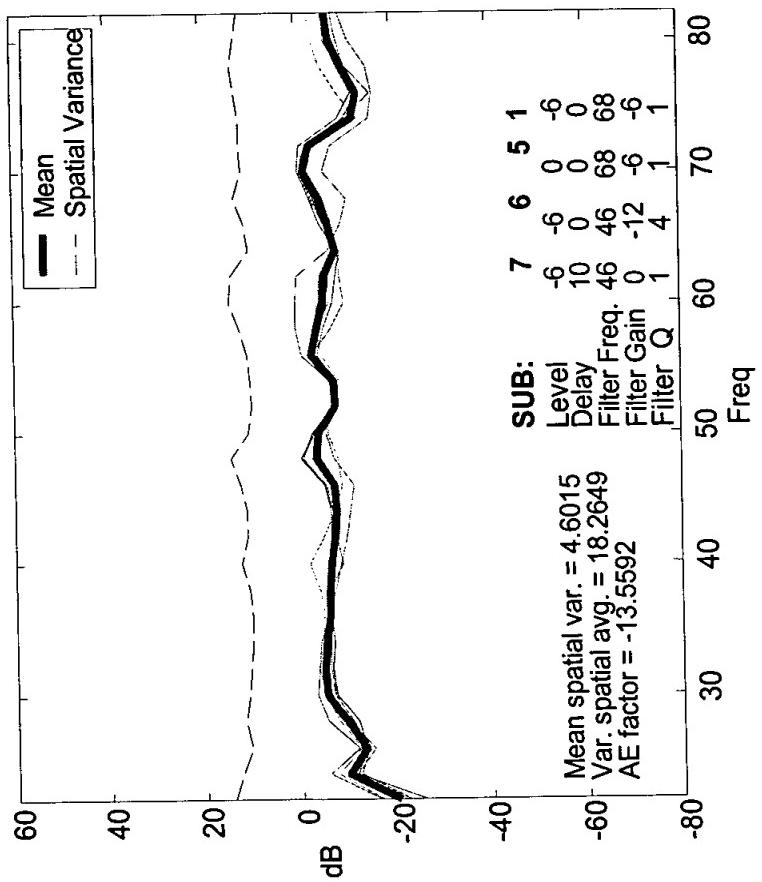


FIG. 38

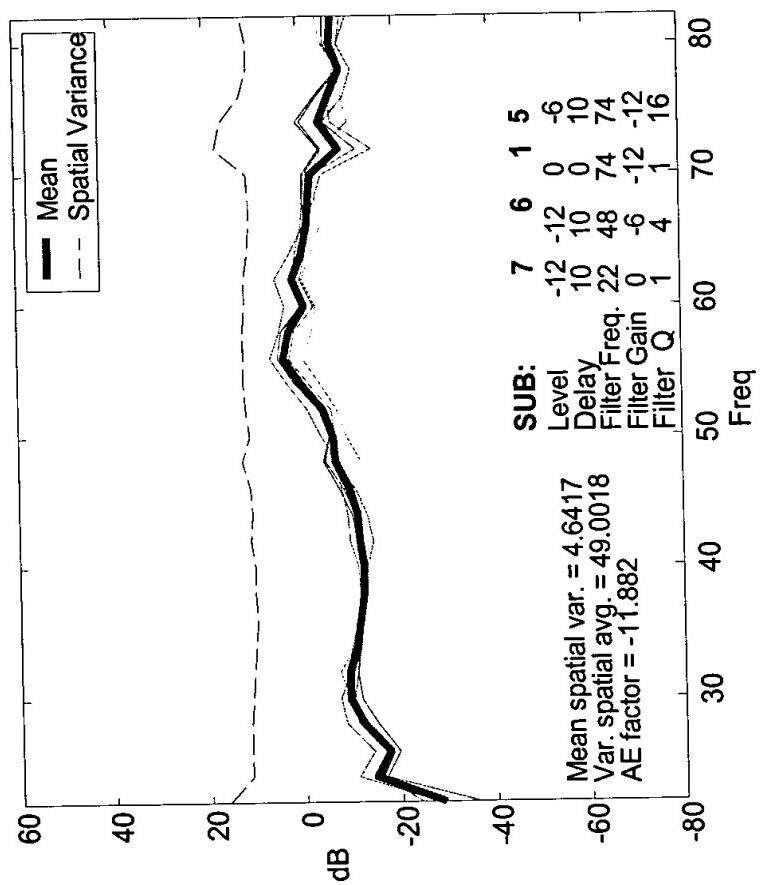


FIG. 39

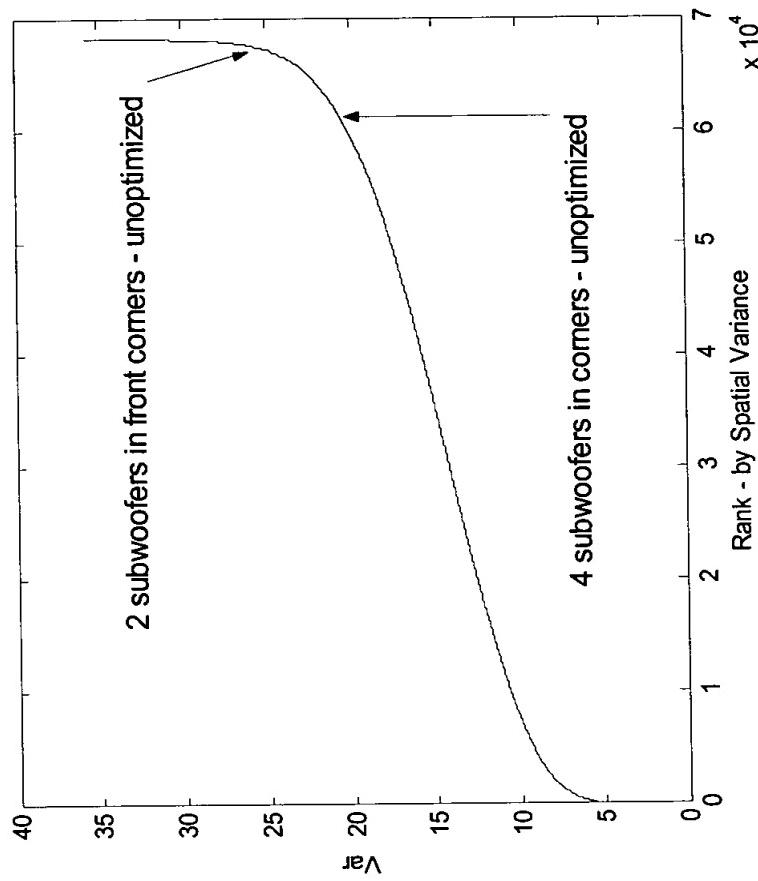


FIG. 40

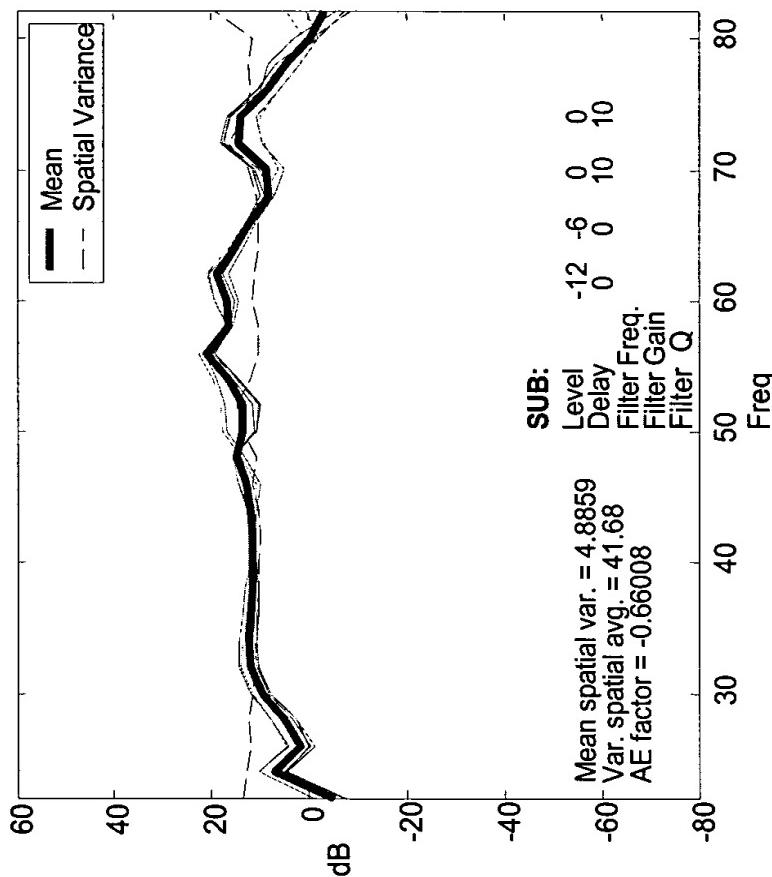


FIG. 41

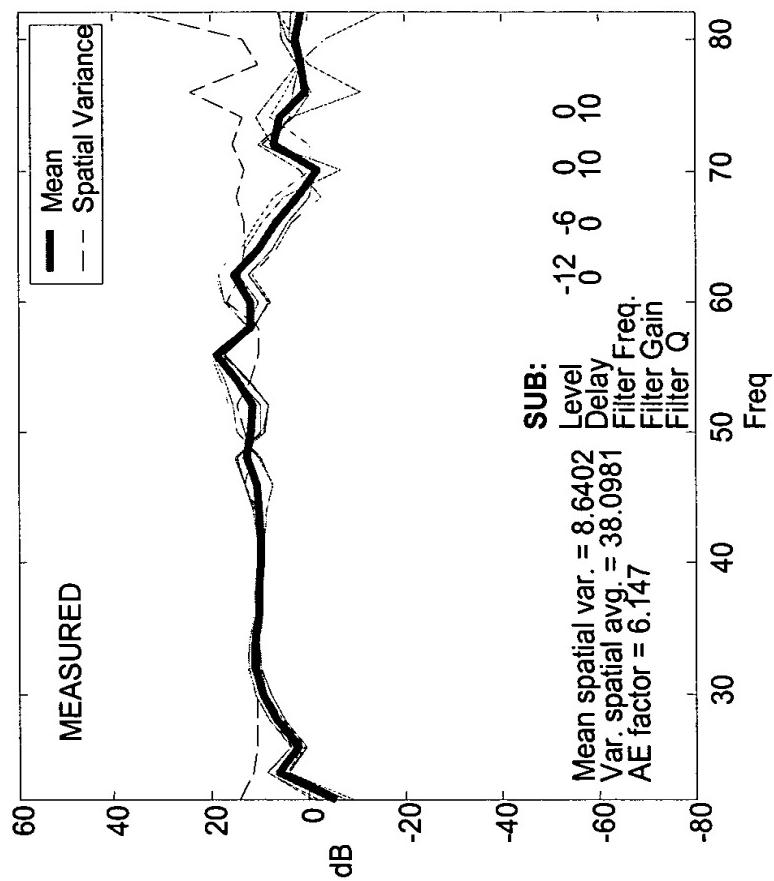


FIG. 42